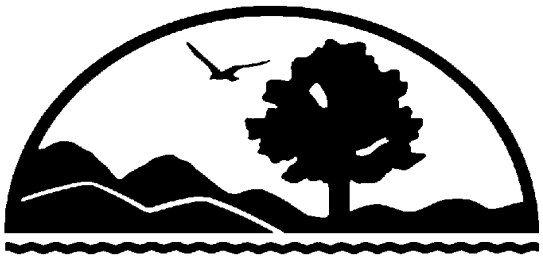

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
SOLID WASTE BRANCH
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601-1190
(502) 564-6716

ANNUAL REPORT FOR A
CLASS I SOLID WASTE LANDFARM

DEP 7064
6/99

- ❑ Before beginning, make additional blank copies for future use.
- ❑ Type or print your responses legibly in indelible ink.
- ❑ This report shall be received by the Cabinet no later than January 31 following the report year. Please complete all information before submitting your report to this office for review.
- ❑ Submit the original and one copy of this report to the Solid Waste Branch.

ANNUAL LANDFARMING REPORT

Year Ending December 31, _____ Permit Number _____ — _____

1. Facility Name _____

2. Mailing Address_____

3. City_____ 4. State _____ 5. Zip _____ 6. County_____

7. Phone Number (_____) _____ - _____ 8. Fax Number (_____) _____ - _____

9. Certified Operator _____ 10. Certification Number _____

11. Waste Characterization:

	Wet Weight	**Dry Weight**
pH	_____ SU	
Total Solids Content	_____ %	
Volatile Solids Content	_____ %	
Total Phosphorous	_____ ppm	_____ ppm
Total Potassium	_____ ppm	_____ ppm
Total Nitrogen (TN)	_____ ppm	_____ ppm
Ammonium Nitrogen (NH4-N)	_____ ppm	_____ ppm
Cadmium	_____ mg/L	_____ mg/kg
Copper	_____ mg/L	_____ mg/kg
Lead	_____ mg/L	_____ mg/kg
Nickel	_____ mg/L	_____ mg/kg
Zinc	_____ mg/L	_____ mg/kg

12. List and quantify additional parameters if required by your registration**.**

Parameter	**Concentration**	
	mg/L	**mg/kg dry wt.**

NOTE: The results reported above are the average of analyses taken during the reporting year. Waste should be analyzed as collected. **Do not conduct a separate analysis of a dried sample for the dry weight values.** Dry weight values (mg/kg) are derived using the following equation:

$$\text{mg/L} \div \left(\frac{\%\ \text{Solids}}{100}\right) = \text{mg/kg dry weight.}$$

13. The annual waste application limit is: _____ ❑ tons per acre ❑ gallons per acre

14. The waste parameter limiting annual application rates is:_____
(nitrogen, cadmium, other designated by cabinet)

If no nutrient, pollutant, or physical characteristic limits the annual application rate, check here ❑.

15. The waste parameter limiting the lifetime application limit is:_____
(Cu, Cd, Pb, Ni, Zn, other)

If no nutrient, pollutant, or physical characteristic limits the lifetime application amount, check here ❑.

NOTE: The annual limits based on nitrogen and cadmium, and the lifetime application limits for cadmium, copper, lead, nickel and zinc, are specified in 401 KAR 48:200. Refer to the conditions listed in your letter of registration for any other parameters which may limit the annual rate or lifetime limit as required by the cabinet. Where no limits are established, the operator must insure the application rates do not cause waste to run off the permitted subplot area, or prolonged saturated soil conditions contributing to soil compaction or poor crop performance.

16. Attach copies of all laboratory analysis reports for waste and soil analyses.

17. Attach copies of laboratory analysis reports for surface water sampling if required by your registration.

Pursuant to 401 KAR 47:160, Section 6(4), "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for such violations."

_____ _____
SIGNATURE DATE

This certification clause shall be signed by the responsible person(s) described in 401 KAR 47:160, Section 6(1), and/or (2) and is required by 401 KAR 47:160, Section 6(4). This clause may be incorporated into a cover letter and attached to this submission. This clause shall accompany every report/application submitted to this office.

Subplot Application Summary

Enter the name of the subplot as it appears in the application for this registration. Complete a block for each permitted subplot, whether or not waste was applied during the reporting year. If no waste was applied, complete only the subplot name and enter zero for the volume applied. If more than one type of crop is harvested from a subplot during the reporting year, complete a separate report block for each harvested crop. Make additional copies as needed.

Subplot Name or Number	Subplot Acreage	Volume Applied Per Acre ❑ Tons ❑ Gallons	Application Method ❑ Injected or Incorporated ❑ Surface Applied	
Date of Last Application	Crop	Harvest Yield Per Acre, if applicable	Harvest Date	Grazing Dates, if applicable
Total Volume Applied in Reporting Year ❑ Tons ❑ Gallons	Total of All Applications To Date ❑ Tons ❑ Gallons	Subplot Life Remaining Years		

Subplot Name or Number	Subplot Acreage	Volume Applied Per Acre ❑ Tons ❑ Gallons	Application Method ❑ Injected or Incorporated ❑ Surface Applied	
Date of Last Application	Crop	Harvest Yield Per Acre, if applicable	Harvest Date	Grazing Dates, if applicable
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Total Volume Applied in Reporting Year ❑ Tons ❑ Gallons	Total of All Applications To Date ❑ Tons ❑ Gallons	Subplot Life Remaining Years		

Landfarming Calculations Worksheet

Section 1. Limiting Parameters

The following equations are used to determine the amount of an annual or lifetime application limiting parameter:

1. Dry Weight Conversion:

   (a) For facilities reporting in gallons:

   $$\text{Gallons applied per acre} \times 8.34 \text{ lbs/gal} \div 2000 \text{ lbs/ton} \times \frac{\%\ \text{Solids}}{100} = \text{dry wt. tons/acre}$$

   Example: The dry tons equivalent of 54,000 gallons of a 1.2% solid waste is 2.7 tons/acre

   (b) For facilities reporting in tons:

   $$\text{Tons applied per acre} \times \frac{\%\ \text{solids}}{100} = \text{dry wt. tons/acre}$$

   Example: The dry tons equivalent of 18 tons of a 24% solid is 4.3 tons/acre

2. Calculation of annual amount of a limiting parameter:

   Mg/kg dry weight x dry wt. tons of waste applied in reporting year x .002 = lbs applied.

   Example: 6.7 dry tons per acre with cadmium at 9.5 mg/kg dry wt. is 0.13 lbs Cd/acre

The calculations above must be performed first to calculate lifetime limits below. With the exception of nitrogen, which is calculated in Sections 2 and 3 of this worksheet, cadmium is the only parameter with an annual limit established by regulation. For any additional parameters for which annual limits were established by the cabinet as a condition for operation of the landfarming facility, refer to your registration.

For landfarming facilities with a daily application limit based on Biological Oxygen Demand (BOD), perform the calculations above using the maximum daily application rate during the reporting year.

3. Lifetime, or cumulative, limits. For cadmium, copper, lead, nickel, and zinc, refer to 401 KAR 48:200 Section 6(23). For any additional parameters for which lifetime limits were established by the cabinet as a condition of operation of the landfarming facility, refer to your registration. The lifetime limit is the sum of all annual application amounts, as calculated above. You must keep a running total for all lifetime limiting parameters for each subplot, and have these records available for inspection by the cabinet.

4. Calculation of remaining subplot use in years based on lifetime limits: **Determine the most limiting parameter, and enter the years remaining based on that parameter in the Subplot Application Summary.**

   (a) Subtract the sum of all applications through the reporting year from the lifetime limit in 401 KAR 48:200 or your registration.

   (b) Divide the remaining amount by the annual amount applied based on the current reporting year.

   Example: With the addition of 0.13 lbs. cadmium in the current reporting year, the subplot sum total of cadmium applied is now 2.3 lbs/acre. The allowable limit is 4.4 lbs/acre Cd:

   4.4 lbs. - 2.3 lbs. = 2.1 lbs. Cd. ÷ 0.13 lbs/yr = 16 years

Section 2. Nitrogen Balance

As required by 401 KAR 48:200 Section 8 (24), the amount of nitrogen land applied must not exceed the nitrogen utilization rate of the crop being grown. Use the actual percentage value, not the decimal equivalent, for all calculations (i.e., if Total Solids Content is 1.2%, use 1.2, **not** 0.012). All values entered on this worksheet must be the same as the values listed in the Waste Characterization section of the application or annual report. Include a copy of the completed Nitrogen Balance worksheet with the Application for a Class I Solid Waste Landfarm and Annual Landfarming Reports.

For the first year of application of waste, the Volume Applied per Acre entered on the Subplot Application Summary sheet must show the lbs. PAN determined above times the total volume applied in the reporting year did not exceed the crop nitrogen recommendation obtained from UK Extension Bulletin AGR 1 or the county extension service. If the amount of Plant Available Nitrogen applied from the waste is less than the crop recommendation, use the value obtained to determine additional fertilizer nitrogen needed by the crop. Make allowance for subplots on which the previous crop was a legume, based on extension service recommendations, and for residual nitrogen, as described in the next section of this worksheet.

1. Percent Organic Nitrogen: Organic N is derived by subtracting the sum of Ammonia and Nitrate N from Total N.

   _____ - (_____ + _____) = _____ % Organic N
   % Total Nitrogen % Ammonium N % Nitrate N

2. (a) Plant Available Nitrogen (PAN), Incorporated Waste:

   _____ + _____ + _____ = _____ % PAN
   % Ammonium N % Nitrate N (% Organic N x 0.4)

   (b) Plant Available Nitrogen, Surface Applied Waste:

   _____ + _____ + _____ = _____ % PAN
   (% Ammonium N x 0.5) % Nitrate N (% Organic N x 0.4)

3. (a) Pounds of Plant Available Nitrogen, Per 1,000 gallons, for facilities reporting in gallons.

   _____ x 83.4 = _____ lbs. PAN/1,000 gallons
   % PAN

   (b) Pounds of Plant Available N per Ton, for facilities reporting in tons.

   _____ x 20 = _____ lbs. PAN/ton
   % PAN

4. Determine the total N/acre for each subplot based on the volume applied, the total residual N/acre from residual nitrogen calculations, nitrogen from previous legume crop, and any nitrogen added as fertilizer.

Section 3. Residual Nitrogen

Residual Nitrogen is the amount of Organic N mineralized from previous years' waste applications. Use the percent (not the decimal equivalent) Organic Nitrogen calculations from Nitrogen Balance worksheets from the corresponding previous years. Calculate the Total Residual N for each subplot according to the volume of waste applied in each of the three previous years and include the amount in the annual nitrogen balance calculations for each subplot.

1. For facilities reporting in gallons:

   (a) One year prior to the reporting year:

   _____ x 16.7 = _____ Residual N/1,000 gallons
   % Organic N

   (b) Two years prior to reporting year:

   _____ x 8.34 = _____ Residual N/1,000 gallons
   % Organic N

   (c) Three years prior to reporting year:

   _____ x 4.17 = _____ Residual N/1,000 gallons
   % Organic N

2. For facilities reporting in tons:

   (a) One year prior to the reporting year:

   _____ x 4 = _____ Residual N/ton
   % Organic N

   (b) Two years prior to reporting year:

   _____ x 2 = _____ Residual N/ton
   % Organic N

   (c) Three years prior to reporting year:

   % Organic N = _____ Residual N/ton

3. Determine the total residual N/acre for each subplot based on the volume applied in the corresponding year. Add the total residual N/acre to the nitrogen calculations for that subplot.